Textbook Alignment to the Utah Core – Eighth Grade Integrated Science

This alignment has been completed using an "Independent Alignment Vendor" from the USOE approved list (www.schools.utah.gov/curr/imc/indvendor.html.) Yes _X_ No _____

Name of Company and Individual Conducting Alignment: _____Nan Kalis_____

A "Credential Sheet" has been completed on the above company/evaluator and is (Please check one of the following):

x On record with the USOE.

□ The "Credential Sheet" is attached to this alignment.

Instructional Materials Evaluation Criteria (name and grade of the core document used to align): Eighth Grade Integrated Science Core Curriculum

Title: *Physical Science with Earth Science* © 2009 *Ecology E* © 2008 ISBN#: 0-07-880550-3 0-07-877821-2

Publisher: Glencoe/McGraw-Hill Publishing Company

Overall percentage of coverage in the *Student Edition (SE) and Teacher Edition (TE)* of the Utah State Core Curriculum: _____%

Overall percentage of coverage in *ancillary materials* of the Utah Core Curriculum: _____%

STANDARD I: Students will understand the nature of changes in matter.				
Percentage of coverage in the *student and teacher edition* for Standard I:_____ %		**Percentage of coverage not in student or teacher edition, but covered in the *ancillary material* for Standard I: _____%**		
OBJECTIVES & INDICATORS		**Coverage in *Student Edition (SE) and Teacher Edition (TE)* (pg #'s, etc.)**	**Coverage in *Ancillary Material* (titles, pg #'s, etc.)**	***Not covered in TE, SE or ancillaries*** ✓
Objective 1.1: Describe the chemical and physical properties of various substances.				
a.	Differentiate between chemical and physical properties.	**Student Edition:** 560-567, 609 *Section Review* 567 **Teacher Wraparound Edition:** ACT 563; CFU 567; RP 560; SCB 550E		
b.	Classify substances based on their chemical and physical properties (e.g., reacts with water, does not react with water, flammable or nonflammable, hard or soft, flexible or nonflexible, evaporates or me at room temperature).	**Student Edition:** 395, 560-567 *Lab* 559 *Section Review* 567 **Teacher Wraparound Edition:** ACT 563; DI 395; DIS 563		
c.	Investigate and report on the chemical and physical properties of a particular substance.	**Student Edition:** 560-567, 575 #9, 609-612 *Integrate Environment* 561 *Lab* 616 **Teacher Wraparound Edition:** A 567; ACT 563, 610; BI 550; CC 563; CFU 567; DI 561; IM 550F; QD 611		

Objective 1.2: Observe and evaluate evidence of chemical and physical change.				
a.	Identify observable evidence of a physical change (e.g., change in shape, size, phase).	**Student Edition:** 562-563 *Launch Lab* 551 *MiniLAB* 562 **Teacher Wraparound Edition:** CFU 567; IM 550E; LD 562; PR 566; QD 565; TFYI 736		
b.	Identify observable evidence of a chemical change (e.g., color change, heat or light given off, change in odor, gas given off).	**Student Edition:** 563-567 *Integrate Earth Science* 565 *Lab* 741 *MiniLAB* 738 *Science Online* 7, 566 **Teacher Wraparound Edition:** CFU 567; LD 562; PR 566; QD 561, 565; RP 560; SJ 564; WQ 684		
c.	Observe and describe chemical reactions involving atmospheric oxygen (e.g., rust, fire, respiration, photosynthesis).	**Student Edition:** 466, 567, 648, 730-733 *Launch Lab* 719 **Teacher Wraparound Edition:** ACT 735; CFU 567, 729; DIS 563; FF 563; SJ 564		
d.	Investigate the effects of chemical change on physical properties of substances (e.g., cooking a raw egg, iron rusting, polymerization of a resin).	**Student Edition:** 563-567, 648, 730-733, 734-738 *Design Your Own Lab* 568-569 *Launch Lab* 719 **Teacher Wraparound Edition:** ACT 735; IL 564; SJ 564		

Objective 1.3: Investigate and measure the effects of increasing or decreasing the amount of energy in a physical or chemical change, and relate the kind of energy added to the motion of the particles.				
a.	Identify the kinds of energy (e.g., heat, light, sound) given off or taken in when a substance undergoes a chemical or physical change.	**Student Edition:** 564, 730-733, 734-738 *Integrate Earth Science* 565 *Lab* 741 **Teacher Wraparound Edition:** ACT 735; CFU 740; LD 736; RS 738; TFYI 736; VL 736		
b.	Relate the amount of energy added or taken away from a substance to the motion of molecules in the substance.	**Student Edition:** 256, 260-265, 266-267, 285 #6, 738-739, 758 *Section Review* 265 **Teacher Wraparound Edition:** BI 252, 718; DIS 739; R 265; SCB 252E-F; UAA 262		
c.	Measure and graph the relationship between the states of water and changes in its temperature.	**Student Edition:** 260-265, 284 #1-#2 *Applying Math* 265 *MiniLAB* 262 **Teacher Wraparound Edition:** TFYI 263; VL 263		
d.	Cite evidence showing that heat may be given off or taken in during a chemical change (e.g., striking a match, mixing vinegar and antacid, mixing ammonium chloride and water).	**Student Edition:** 564, 730-733, 734-738 *Integrate Environment* 139 *Lab* 742-743 **Teacher Wraparound Edition:** A 738, 740; ACT 735; CFU 567		
e.	Plan and conduct an experiment, and report the effect of adding or removing energy on the chemical and physical changes.	**Student Edition:** 734-738 *Lab* 741, 742-743 **Teacher Wraparound Edition:** A 738; ACT 735; LD 736; QD 731		

Objective 1.4: Identify the observable features of chemical reactions.				
a.	Identify the reactants and products in a given chemical change and describe the presence of the same atoms in both the reactants and products.	**Student Edition:** 720-725, 726-729, 730-733 *Applying Math* 728, 729 *Science Online* 727 **Teacher Wraparound Edition:** A 725, 729; ACT 731; CFU 729; DI 727; IM 728; R 725; RS 727; SCB 718E		
b.	Cite examples of common significant chemical reactions (e.g., photosynthesis, respiration, combustion, rusting) in daily life.	**Student Edition:** 142-143, 466, 486-493, 518, 536-538, 563-567, 648-649 *Integrate Earth Science* 565 *Integrate Environment* 139 *Launch Lab* 455, 719 *Science Online* 7 **Teacher Wraparound Edition:** DIS 239; IL 564; LD 537		
c.	Demonstrate that mass is conserved in a chemical reaction (e.g., mix two solutions that result in a color change or for-mation of a precipitate and weigh the solutions before and after mixing).	**Student Edition:** 567, 573 #22, 574 #5, 575 #12, 720-725 *Design Your Own Lab* 568-569 *MiniLAB* 724 *Section Review* 567 **Teacher Wraparound Edition:** A 569; AIL 568; DIS 723; IM 550F; QD 722; SCB 550E, 718E		
d.	Experiment with variables affecting the relative rates of chemical changes (e.g., heating, cooling, stirring, crushing, concentration).	**Student Edition:** 734-740, 747 #24 *Lab* 741, 742-743 *Section Review* 740 **Teacher Wraparound Edition:** A 743; BI 718; PR 739; RS 738; SCB 718F		

e.	Research and report on how scientists or engineers have applied principles of chemistry to an application encountered in daily life (e.g., heat-resistant plastic handles on pans, rust-resistant paints on highway bridges).	**Student Edition:** 52-53, 395, 402-403 *Accidents in Science* 60, 712, 744 *Integrate Career* 753 *Integrate Earth Science* 496 *National Geographic* 44 **Teacher Wraparound Edition:** ATE 60; CB 60; V 45		
STANDARD II: Students will understand that energy from sunlight is changed to chemical energy in plants, transfers between living organisms, and that changing the environment may alter the amount of energy provided to living organisms.				
Percentage of coverage in the *student and teacher edition* for Standard II:_____ %		**Percentage of coverage not in student or teacher edition, but covered in the *ancillary material* for Standard III: _____%**		
OBJECTIVES & INDICATORS		**Coverage in *Student Edition (SE) and Teacher Edition (TE)* (pg #'s, etc.)**	**Coverage in *Ancillary Material* (titles, pg #'s, etc.)**	***Not covered in TE, SE or ancillaries*** ✓
Objective 2.1: Compare ways that plants and animals obtain and use energy.				
a.	Recognize the importance of photosynthesis in using light energy as part of the chemical process that builds plant materials.	**Student Edition:** *Integrate Life Science* 827	**Student Edition:** (E) 20, 50-51 *Integrate Chemistry* 21 **Teacher Wraparound Edition:** (E) TFYI 52	
b.	Explain how respiration in animals is a process that converts food energy into mechanical and heat energy.		**Student Edition:** (E) 49 *Science Online* 49 **Teacher Wraparound Edition:** (E) DI 48	

c.	Trace the path of energy from the sun to mechanical energy in an organism (e.g., sunlight - light energy to plants by photosynthesis to sugars - stored chemical energy to respiration in muscle cell - usable chemical energy to muscle contraction-mechanical energy).	**Student Edition:** 142-143 *Integrate Environment* 139 **Teacher Wraparound Edition:** IM 142	**Student Edition:** (E) 20-21, 48, 50-53 *National Geographic* 48	
Objective 2.2: Generalize the dependent relationships between organisms.				
a.	Categorize the relationships between organisms (i.e., producer/consumer/decomposer, predator/prey, mutualism/parasitism) and provide examples of each.		**Student Edition:** (E) 20-24, 50-53 *Section Review* 24 **Teacher Wraparound Edition:** (E) A 24; ACT 22; DI 22, 541; IM 6F; UAA 22; USW 23	
b.	Use models to trace the flow of energy in food chains and food webs.		**Student Edition:** (E) 21, 31 #25, 31 #30, 51-53 **Teacher Wraparound Edition:** (E) A 53; ACT 51; CFU 53; DI 51; DIS 51; MM 22; R 53; SCB 34F; VL 23	
c.	Formulate and test a hypothesis on the effects of air, temperature, water, or light on plants (e.g., seed germination, growth rates, seasonal adaptations).		**Student Edition:** (E) *Applying Skills* 49 *Launch Lab* 63 *MiniLAB* 135	

d.	Research multiple ways that different scientists have investigated the same ecosystem.	**Teacher Wraparound Edition:** A 539; FF 538	**Student Edition:** (E) 138-143, 151 #23 *Integrate Career* 79 *Science and Society* 146 *You Do It* 5 **Teacher Wraparound Edition:** (E) DIS 14; IL 14	
Objective 2.3: Analyze human influence on the capacity of an environment to sustain living things.				
a.	Describe specific examples of how humans have changed the capacity of an environment to support specific life forms (e.g., people create wetlands and nesting boxes that increase the number and range of wood ducks, acid rain damages amphibian eggs and reduces population of frogs, clear cutting forests affects squirrel populations, suburban sprawl reduces mule deer winter range thus decreasing numbers of deer).	**Student Edition:** 668 *Science and Society* 678, 778 **Teacher Wraparound Edition:** R 668	**Student Edition:** (E) 102-110, 121 #26, 126-136 *MiniLAB* 135 *The Nature of National Geographic* 132 *Science* 2-5 *Science and Society* 86 *Use the Internet Lab* 84-85 **Teacher Wraparound Edition:** (E) IL 108; SCB 92E-F; TFYI 109	
b.	Distinguish between inference and evidence in a newspaper or magazine article relating to the effect of humans on the environment.	**Student Edition:** 10 **Teacher Wraparound Edition:** CC 10; PR 667	**Student Edition:** (E) *Science Online* 104 *Science Skill Handbook* 154	

c.	Infer the potential effects of humans on a specific food web.		**Student Edition:** (E) 73, 78-79, 91 #22, 102-110, 126-136 *Lab* 137 *Launch Lab* 125 *National Geographic* 132 *Section Review* 110 **Teacher Wraparound Edition:** (E) ACT 107; DI 132; DIS 103, 131; TFYI 71, 132	
d.	Evaluate and present arguments for and against allowing a specific species of plant or animal to become extinct, and relate the argument the of flow energy in an ecosystem.		**Student Edition:** (E) 126-129 *Lab* 144-145 **Teacher Wraparound Edition:** (E) ACT 128; DI 144; QD 131; R 136; SCB 124E; SJ 130	

STANDARD III: Students will understand the processes of rock and fossil formation.				
Percentage of coverage in the *student and teacher edition* for Standard III:_____ %		**Percentage of coverage not in student or teacher edition, but covered in the *ancillary material* for Standard IV: _____%**		
OBJECTIVES & INDICATORS		**Coverage in *Student Edition(SE) and Teacher Edition (TE)* (pg #'s, etc.)**	**Coverage in *Ancillary Material* (titles, pg #'s, etc.)**	***Not covered in TE, SE or ancillaries*** ✓
Objective 3.1: Compare rocks and minerals and describe how they are related.				
a.	Recognize that most rocks are composed of minerals.	**Student Edition:** 613, 617-623, 624-628, 630-631 **Teacher Wraparound Edition:** DIS 632; PR 635; SCB 606E; TFYI 632; VL 681		
b.	Observe and describe the minerals found in rocks (e.g., shape, color, luster, texture, hardness).	**Student Edition:** 608-615 *Lab* 616 *Section Review* 615 **Teacher Wraparound Edition:** ACT 610, 611; QD 611; SCB 606E; TFYI 610; VL 611		
c.	Categorize rock samples as sedimentary, metamorphic, or igneous.	**Student Edition:** 617-623, 624-629, 630-635 *Applying Math* 621 *Lab* 636-637 *Science Online* 622 **Teacher Wraparound Edition:** ACT 376; CFU 623, 629; DI 626, 631; QD 619, 621, 625; SCB 606E		

Objective 3.2: Describe the nature of the changes that rocks undergo over long periods of time.				
a.	Diagram and explain the rock cycle.	**Student Edition:** 617-623, 624-629, 630-635, 641 #19, 643 #11 **Teacher Wraparound Edition:** BI 606; LD 634; RS 634; TFYI 634; TTT 606F		
b.	Describe the role of energy in the processes that change rock materials over time.	**Student Edition:** 617-623, 626-627, 630-635 *National Geographic* 633 *Section Review* 623, 629 **Teacher Wraparound Edition:** LD 627; SCB 606E; TFYI 634; UAA 619; V 633		
c.	Use a model to demonstrate how erosion changes the surface of Earth.	**Student Edition:** 654-662 *MiniLAB* 656 **Teacher Wraparound Edition:** A 656, 662; ACT 655; DI 660; IL 659; LD 659; QD 657; R 662; SCB 644E; UAA 657		
d.	Relate gravity to changes in Earth's surface.	**Student Edition:** 656-658 *MiniLAB* 656 *Study Guide* 679 *Summary* 662 **Teacher Wraparound Edition:** DIS 363; RP 654		
e.	Identify the role of weathering of rocks in soil formation.	**Student Edition:** 646-652 *MiniLAB* 647 *Section Review* 652 **Teacher Wraparound Edition:** TFYI 650		

f.	Describe and model the processes of fossil formation.	**Student Edition:** 671 **Teacher Wraparound Edition:** DI 671; QD 671; TFYI 671		
Objective 3.3: Describe how rock and fossil evidence is used to infer Earth's history.				
a.	Describe how the deposition of rock materials produces layering of sedimentary rocks over time.	**Student Edition:** 669-671 **Teacher Wraparound Edition:** SCB 644F		
b.	Identify the assumptions scientists make to determine relative ages of rock layers.	**Student Edition:** 669-672 *Section Review* 675 **Teacher Wraparound Edition:** RS 671; SCB 644F		
c.	Explain why some sedimentary rock layers may not always appear with youngest rock on top and older rocks below (i.e., folding, faulting).	**Student Edition:** 669-675 *Lab* 676-677 *Section Review* 675 **Teacher Wraparound Edition:** A 677; AIL 677; MM 674; VL 671		
d.	Research how fossils show evidence of the changing surface of the Earth.	**Student Edition:** 355, 671-672		
e.	Propose why more recently deposited rock layers are more likely to contain fossils resembling existing species than older rock layers.	**Student Edition:** 669-672 **Teacher Wraparound Edition:** QD 670		
Objective 3.4: Compare rapid and gradual changes to Earth's surface.				
a.	Describe how energy from the Earth's interior causes changes to Earth's surface (i.e., earthquakes, volcanoes).	**Student Edition:** 358-361, 373-378 *Science Online* 359, 374, 376 **Teacher Wraparound Edition:** BI 352; PR 369; SCB 352E-F; SJ 374		

b.	Describe how earthquakes and volcanoes transfer energy from Earth' interior to the surface (e.g., seismic waves transfer mechanical energ flowing magma transfers heat and mechanical energy).	**Student Edition:** 288-293, 362-369, 373-378 *Integrate Earth Science* 292 *Lab* 380-381 *Launch Lab* 287 *Science Online* 293 **Teacher Wraparound Edition:** A 293; PR 369, 393; QD 365, 374; SCB 286E; 352E		
c.	Model the process of energy buildup and release in earthquakes.	**Student Edition:** 358-369 *MiniLAB* 364 **Teacher Wraparound Edition:** ACT 368; R 369		
d.	Investigate and report possible reasons why the best engineering or ecological practices are not always followed in making decisions about building roads, dams, and other structures.	**Student Edition:** 42-45, 46-50, 52-55 *Applying Science* 49, 499 *MiniLAB* 47 *National Geographic* 44 *Science Online* 45 *Section Review* 50 **Teacher Wraparound Edition:** ACT 48; CC 495; DI 44; IL 54; SJ 55, 660		
e.	Model how small changes over time add up to major changes to Earth's surface.	**Student Edition:** 565-567, 646-652, 654-662 *Applying Math* 652 *Science Online* 566 **Teacher Wraparound Edition:** BI 644; IM 649; PR 566; R 659; SCB 644E-F; TFYI 566, 634		

STANDARD IV: Students will understand the relationships among energy, force, and motion.				
Percentage of coverage in the *student and teacher edition* for Standard IV:_____ %		**Percentage of coverage not in student or teacher edition, but covered in the *ancillary material* for Standard VI: _____%**		
OBJECTIVES & INDICATORS		**Coverage in *Student Edition(SE) and Teacher Edition (TE)* (pg #'s, etc.)**	**Coverage in *Ancillary Material* (titles, pg #'s, etc.)**	***Not covered in TE, SE or ancillaries*** ✓
Objective 4.1: Investigate the transfer of energy through various materials.				
a.	Relate the energy of a wave to wavelength.	**Student Edition:** 294-299, 320-324, 460, 462-467 *Lab* 310-311 *MiniLAB* 295 *Section Review* 299, 461 **Teacher Wraparound Edition:** A 295; ACT 295; QD 296; R 299, 461; RS 297; SJ 464		
b.	Compare the transfer of energy (i.e., sound, light, earthquake waves, heat) through various mediums.	**Student Edition:** 288-293, 320-326, 364-366, 370-372, 456-461 *Applying Math* 459 *Lab* 300 *National Geographic* 292 *Science and History* 312 *Science Online* 293 **Teacher Wraparound Edition:** CFU 369; DIS 296; IM 386F; LD 289; RS 460		

c.	Describe the spread of energy away from an energy-producing source.	**Student Edition:** 288-293, 320-326, 364-366, 370-371, 456-461 *Applying Math* 369 *Lab* 380-381 *Launch Lab* 287 **Teacher Wraparound Edition:** ACT 365; IM 286F; QD 365, 389; V 292; VL 391		
d.	Compare the transfer of heat by conduction, convection, and radiation and provide examples of each.	**Student Edition:** 266-270, 361, 827 *Lab* 271 *MiniLAB* 267, 519 *National Geographic* 268 **Teacher Wraparound Edition:** A 270, 271; CFU 270; PR 270; QD 268; RP 266; SCB 352E, 516E		
e.	Demonstrate how white light can be separated into the visible color spectrum.	**Student Edition:** 327-330, 339-343 *Section Review* 330, 343 **Teacher Wraparound Edition:** A 343; DI 341; FF 329; IM 340; QD 340, 465		
Objective 4.2: Examine the force exerted on objects by gravity.				
a.	Distinguish between mass and weight.	**Student Edition:** 19, 106-108 *Section Review* 111 **Teacher Wraparound Edition:** ACT 106; DIS 107; IM 106		
b.	Cite examples of how Earth's gravitational force on an object depends upon the mass of the object.	**Student Edition:** 104-108, 124 #5, 132-133, 187 *Launch Lab* 97 *Section Review* 111 **Teacher Wraparound Edition:** ACT 107; QD 106, 132; SCB 96E		

c.	Describe how Earth's gravitational force on an object depends upon the distance of the object from Earth.	**Student Edition:** 104-105, 124 #5, 132-133, 187 *Section Review* 111 **Teacher Wraparound Edition:** FF 105; SCB 96E		
d.	Design and build structures to support a load.	**Student Edition:** *Model and Invent Lab* 176-177 *National Geographic* 368 **Teacher Wraparound Edition:** ACT 368; LD 170; MM 56		
e.	Engineer (design and build) a machine that uses gravity to accomplish a task.	**Teacher Wraparound Edition:** IL 85, 109; QD 107		
Objective 4.3: Investigate the application of forces that act on objects, and the resulting motion.				
a.	Calculate the mechanical advantage created by a lever.	**Student Edition:** 166-174, 181 #17, 183 #9 *Applying Math* 174 *Lab* 175 *Model and Invent Lab* 176-177 **Teacher Wraparound Edition:** A 175; ACT 169; DIS 171; FF 173; LD 170; VL 172		
b.	Engineer a device that uses levers or inclined planes to create a mechanical advantage.	**Student Edition:** 160-165, 166-174 *Lab* 175 *Launch Lab* 153 **Teacher Wraparound Edition:** ACT 172; CFU 165; DI 167, 169; IL 170; IM 152F; LD 170; MM 169, 173; QD 167		

c.	Engineer a device that uses friction to control the motion of an object.	**Student Edition:** 83-86 *MiniLAB* 83 *Design Your Own Lab* 88-89, 144-145 **Teacher Wraparound Edition:** A 89, 131; ACT 85; AIL 144; IL 85; LD 83; R 86		
d.	Design and build a complex machine capable of doing a specified task.	**Student Edition:** 174 *Design* 178 *Science Online* 172 **Teacher Wraparound Edition:** DI 169		
e.	Investigate the principles used to engineer changes in forces and motion.	**Student Edition:** 70-75, 76-80, 81-86, 98-103, 113-117 *Design Your Own Lab* 88-89 *MiniLAB* 99 *National Geographic* 115 **Teacher Wraparound Edition:** A 89; AIL 88; CC 77; IM 77; PR 79; V 115		
Objective 4.4: Analyze various forms of energy and how living organisms sense and respond to energy.				
a.	Analyze the cyclic nature of potential and kinetic energy (e.g., a bouncing ball, a pendulum).	**Student Edition:** 128-133, 136-139 *Applying Math* 130 *Design Your Own Lab* 144-145 *Lab* 134 *MiniLAB* 131 *National Geographic* 138 *Section Review* 133 **Teacher Wraparound Edition:** BI 126; CFU 133; IL 141; QD 130; RP 133; SCB 126E; VL 136		

b.	Trace the conversion of energy from one form of energy to another (e.g., light to chemical to mechanical).	**Student Edition:** 135-143, 438-444, 486-493, 494-497, 501-506 *Integrate Environment* 139 *Integrate Life Science* 827 *Launch Lab* 127 *MiniLAB* 140 *Section Review* 444 **Teacher Wraparound Edition:** A 143; QD 136; RS 442; SJ 139; VL 136	**Student Edition:** (E) 96-100	
c.	Cite examples of how organisms sense various types of energy.	**Student Edition:** 331-337, 459 *Integrate Life Science* 735 *Science and History* 478 **Teacher Wraparound Edition:** TFYI 335	**Student Edition:** (E) 20, 38-39 *MiniLAB* 78	
d.	Investigate and report the response of various organisms to changes in energy (e.g., plant response to light, human response to motion, sound, light, insect's response to changes in light intensity).	**Student Edition:** 320-326, 335-337 *Integrate Life Science* 522 *MiniLAB* 323 *Science Online* 7 **Teacher Wraparound Edition:** ACT 321, 531; VL 336	**Student Edition:** (E) 20, 38-39, 50 *Launch Lab* 63	
e.	Investigate and describe how engineers have developed devices to help us sense various types of energy (e.g., seismographs, eyeglasses, telescopes, hearing aids).	**Student Edition:** 323-326, 336-337, 367, 818-822 *Design Your Own Lab* 344-345 *Integrate Astronomy* 324 *Integrate Career* 335 *MiniLAB* 819 *Science and History* 312 *Science Online* 325, 821 **Teacher Wraparound Edition:** AIL 344; CC 336; CFU 822		